

Gentlemen:

I wish to express my strong opposition to the Broadband Over Powerline proposal that is currently under consideration by the Commission. I am an RF Engineer by profession and specialize in high-speed data as well as HF radio and am in a position to speak with some authority on this matter. Speaking bluntly, the BPL proposal is a horrible idea that stands an excellent chance of destroying radio communications over most of the HF spectrum, with only a marginal chance of success for its intended mission of providing broadband data transmission.

The problems center around the nature of the signals themselves as well as the characteristics of transmission lines. Digital signals occupy a very wide slice of the radio spectrum, often measured in tens or hundreds of megahertz of bandwidth, depending upon the data rate. Power lines are not good transmission lines for such bandwidths. Indeed, they are somewhat marginal for power line frequencies, let alone any higher frequencies. Successful reconstruction of the transmitted waveform depends upon receiving at least the fundamental frequencies and their third harmonics, preferably up to the fifth harmonics. The probability is that a large part of the high frequency energy of the digital signal will be lost by radiation, which will result in non-ideal signals from the standpoint of the digital user, but will also produce devastating interference to the users of the HF radio spectrum.

What sort of interference potential are we concerned about? Beginning at a few hundred kilohertz and moving upward, we find thousands of aircraft local navigation marker beacons, the AM broadcast band service, HF radio communications for a variety of services, and international shortwave broadcasting. Consider now, the proximity of an interference radiator as pervasive as the power grid. The potential for harmful interference even from microwatt power levels is enormous. Potentially, it could ruin HF radio communications over very wide areas.

This proposal must be denied. Its enormous potential for harm enormously outweighs any conceivable benefit.

Sincerely,  
Donnie S. Coleman  
RF Engineer